forming an epitaxial layer having the first conductivity type over the substrate formed with the buried layer;

forming a high-voltage well having a second conductivity type in the epitaxial layer; and

forming a drift region in the high-voltage well, the drift region being vertically aligned with the buried layer.

14. The method of claim **13**, further including forming a pre-high-voltage well having the second conductivity type in the substrate before forming the buried layer,

wherein the forming the buried layer includes forming the buried layer in the pre-high-voltage well.

15. The method of claim **13**, further including:

forming a plurality of pre-high-voltage wells having the second conductivity type in the substrate, the plurality of pre-high-voltage wells being spaced apart from each other,

wherein forming the buried layer includes forming a plurality of buried layers having the first conductivity type above the plurality of pre-high-voltage wells, each buried layer being formed above a respective one of the pre-high-voltage wells.

16. The method of claim **13**, wherein forming the buried layer includes forming a plurality of first buried layers having the first conductivity type in the substrate, and forming a plurality of second buried layers having the second conductivity type between the plurality of first buried layers.

17. The method of claim **13**, wherein the forming the drift region includes:

forming a top region having the first conductivity type in the high-voltage well; and

forming a grade region having the second conductivity type above the top region.

18. The method of claim **13**, further including:

forming a source well having the first conductivity type in the high-voltage well, the source well being spaced apart from the drift region;

forming a source region in the source well;

forming a drain region in the high-voltage well and spaced apart from the drift region;

forming a gate oxide layer on the epitaxial layer between the source region and the drain region; and

forming a gate layer on the gate oxide layer.

19. The method of claim **13**, wherein the first conductivity type is P-type and the second conductivity type is N-type.

20. The method of claim **13**, wherein the first conductivity type is N-type and the second conductivity type is P-type.

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